

What is Claimed Is:

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1. A method in an application server configured for executing a voice application, the method comprising:

parsing an extensible markup language (XML) document having XML tags for defining voice application operations;

collecting attributes describing execution of the XML tags by the application server within an application runtime environment; and

generating for storage on a tangible medium an output file that describes the voice application by outputting at least a portion of the collected attributes based on a user selection.

2. The method of claim 1, wherein the collecting step includes:

identifying resources specified by the XML tags for selective execution based on respective specified conditions; and

storing the identified resources in a resource collection table.

3. The method of claim 2, wherein the identified resources include sound files configured for storing voice prompts, the step of storing the identified resources including storing the name of the sound files.

4. The method of claim 3, wherein the sound files are stored in .wav format, each sound file having a corresponding text field for storing a corresponding text prompt, the step of storing the identified resources further including storing the text prompt concurrently with the respective sound files.

5. The method of claim 2, wherein the collecting step further includes:
identifying executable procedures specified by the XML tags for selective execution based on the respective specified conditions; and

storing the identified executable procedures in an executable procedures collection table.

6. The method of claim 5, wherein the step of identifying executable procedures includes identifying a procedure call to an external resource.

7. The method of claim 5, wherein the collecting step further includes:
identifying possible next states of the voice application specified by the XML tags based on the respective specified conditions; and
storing the possible next states in a next states collection table.

8. The method of claim 7, wherein the generating step includes selecting for the output file the attributes from at least one of the resource collection table, the executable procedures collection table, and the next states collection table, based on the user selection.

9. The method of claim 8, wherein the generating step further includes selecting for the output file the attributes based on the user selection specifying one of a user prompt menu, a resource utilization table, and a call flow diagram.

10. The method of claim 7, wherein the step of storing the possible next states includes storing within an entry of the next states collection table, corresponding to the XML document, the possible next states.

11. The method of claim 5, wherein the step of storing the identified executable procedures includes storing within an entry of the executable procedures collection table, corresponding to the XML document, the identified executable procedures.

12. The method of claim 2, wherein the step of storing the identified resources includes

storing within an entry of the resource collection table, corresponding to the XML document, the identified resources.

13. The method of claim 1, wherein the parsing step includes obtaining context information relative to the application runtime environment for each XML tag in the XML document.

14. The method of claim 13, wherein the obtaining step includes:
interpreting for each XML tag a corresponding operation;
locating referenced XML documents that are specified within the XML tags;
identifying referenced procedure calls that are specified within the XML tags; and
locating resources specified within the XML tags.

15. The method of claim 13, wherein the obtaining step includes interpreting each XML tag based on at least one of execution of a prescribed routine corresponding to said each XML tag and referencing of a tag list that specifies a corresponding operation for said each XML tag.

16. An application server comprising:
a storage medium configured for storing extensible markup language (XML) documents having XML tags that define voice application operations for a voice application; and
an application runtime environment configured for generating an output file that describes selected attributes of the voice application, the application runtime environment having a parser configured for determining attributes of the respective XML tags within each of the XML documents according to the application runtime environment, and a context collection module configured for storing the determined attributes, the application runtime environment selecting the stored determined attributes based on a user selection.

17. The application server of claim 16, wherein the application runtime environment includes a tag implementation module configured for executing the respective voice application

operations specified by the XML tags, the tag implementation module having an executable library configured for storing executable routines for a first group of the XML tags, and a tag list that describes the voice application operations for a second group of the XML tags, the parser configured for determining the attributes based on the executable library and the tag list.

18. The application server of claim 17, wherein the application runtime environment includes a resources directory configured for identifying respective locations of resources specified in the XML documents, the parser configured for determining the attributes based on the resources directory.

19. The application server of claim 18, wherein the resources are stored as voice prompts, each voice prompt having audio data and text data specifying contents of the corresponding voice prompt.

20. The application server of claim 18, wherein the application runtime environment includes a procedures library configured for specifying executable procedures configured for generating respective procedure calls to prescribed external resources, the parser configured for determining the attributes based on the procedures library.

21. The application server of claim 20, wherein the context collection module includes:
 a resource collection table configured for storing the resources determined by the XML parser to be specified by a corresponding parsed XML document;
 an executable procedures collection table configured for storing the executable procedures determined by the XML parser to be specified by the corresponding parsed XML document; and
 a next states collection table configured for storing possible next states of the voice application determined by the XML parser to be specified by the corresponding parsed XML document, the application runtime environment selecting the stored determined attributes from the

resource collection table, the executable procedures collection table, and the next states collection table based on the user selection.

22. The application server of claim 21, wherein the application runtime environment further includes an output module configured for generating the output file as any one of a user prompt menu, a resource utilization table, and a call flow diagram, based on the user selection.

23. A computer readable medium having stored thereon sequences of instructions for describing a voice application, the sequences of instructions including instructions for performing the steps of:

parsing an extensible markup language (XML) document having XML tags for defining voice application operations;

collecting attributes describing execution of the XML tags by the application server within an application runtime environment; and

generating for storage on a tangible medium an output file that describes the voice application by outputting at least a portion of the collected attributes based on a user selection.

24. The medium of claim 23, wherein the collecting step includes:
 identifying resources specified by the XML tags for selective execution based on respective specified conditions; and
 storing the identified resources in a resource collection table.

25. The medium of claim 24, wherein the identified resources include sound files configured for storing voice prompts, the step of storing the identified resources including storing the name of the sound files.

26. The medium of claim 25, wherein the sound files are stored in .wav format, each sound file having a corresponding text field for storing a corresponding text prompt, the step of storing the

27. The medium of claim 24, wherein the collecting step further includes:
identifying executable procedures specified by the XML tags for selective execution based on the respective specified conditions; and
storing the identified executable procedures in an executable procedures collection table.

29. The medium of claim 27, wherein the collecting step further includes:
identifying possible next states of the voice application specified by the XML tags based on the respective specified conditions; and
storing the possible next states in a next states collection table.

31. The medium of claim 30, wherein the generating step further includes selecting for the output file the attributes based on the user selection specifying one of a user prompt menu, a resource utilization table, and a call flow diagram.

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33. The medium of claim 27, wherein the step of storing the identified executable procedures includes storing within an entry of the executable procedures collection table, corresponding to the XML document, the identified executable procedures.

34. The medium of claim 23, wherein the step of storing the identified resources includes storing within an entry of the resource collection table, corresponding to the XML document, the identified resources.

35. The medium of claim 23, wherein the parsing step includes obtaining context information relative to the application runtime environment for each XML tag in the XML document.

36. The medium of claim 35, wherein the obtaining step includes:
interpreting for each XML tag a corresponding operation;
locating referenced XML documents that are specified within the XML tags;
identifying referenced procedure calls that are specified within the XML tags; and
locating resources specified within the XML tags.

37. The medium of claim 35, wherein the obtaining step includes interpreting each XML tag based on at least one of execution of a prescribed routine corresponding to said each XML tag and referencing of a tag list that specifies a corresponding operation for said each XML tag.

38. An application server comprising:
a storage medium configured for storing extensible markup language (XML) documents having XML tags that define voice application operations for a voice application; and
means for generating an output file that describes selected attributes of the voice application,
generating means having a parser means for determining attributes of the respective XML tags within each of the XML documents according to the application runtime environment, and a context

means for storing the determined attributes, the generating means selecting the stored determined attributes based on a user selection.

39. The application server of claim 16, wherein the generating means includes a tag implementation means for executing the respective voice application operations specified by the XML tags, the tag implementation means having an executable library configured for storing executable routines for a first group of the XML tags, and a tag list that describes the voice application operations for a second group of the XML tags, the parser means configured for determining the attributes based on the executable library and the tag list.

40. The application server of claim 39, wherein the generating means further includes a resources directory configured for identifying respective locations of resources specified in the XML documents, the parser means configured for determining the attributes based on the resources directory.

41. The application server of claim 40, wherein the resources are stored as voice prompts, each voice prompt having audio data and text data specifying contents of the corresponding voice prompt.

42. The application server of claim 40, wherein the generating means further includes a procedures library configured for specifying executable procedures configured for generating respective procedure calls to prescribed external resources, the parser means configured for determining the attributes based on the procedures library.

43. The application server of claim 42, wherein the context means includes:
a resource collection table configured for storing the resources determined by the XML parser to be specified by a corresponding parsed XML document;

an executable procedures collection table configured for storing the executable procedures
5 determined by the XML parser to be specified by the corresponding parsed XML document; and

a next states collection table configured for storing possible next states of the voice
application determined by the XML parser to be specified by the corresponding parsed XML
document, the application runtime environment selecting the stored determined attributes from the
resource collection table, the executable procedures collection table, and the next states collection
10 table based on the user selection.

44. The application server of claim 43, wherein the generating means further includes an
output module configured for generating the output file as any one of a user prompt menu, a resource
utilization table, and a call flow diagram, based on the user selection.

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